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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/506,318	02/17/2000	Fumio Echigo	10873.487US01	7531
23552	7590	11/17/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			PIZIALI, ANDREW T	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/506,318

Applicant(s)

ECHIGO ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13,14,16-26 and 28-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13,14,16-26 and 28-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/17/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed on 10/18/2004 has been entered.

***Claim Rejections - 35 USC § 102/103***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13-14, 16-24, 37, 39-50, 63 and 65 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USPN 6,030,575 to Barron et al. (hereinafter referred to as Barron).

Regarding claims 13-14, 16-24, 37, 39-50, 63 and 65, Barron discloses a prepreg comprising a short fiber nonwoven fabric comprising thermal-resistant synthetic fibers, an inorganic binder, and a resin varnish wherein the prepreg is manufactured by bonding the synthetic fibers by coating with the inorganic binder and after the bonding impregnating the nonwoven fabric with a resin varnish wherein the thermal-resistant synthetic fibers intersect each

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other forming intersections wherein the thermal-resistant synthetic fibers are bound with the inorganic binder at the intersections (see entire document including column 4, lines 30-37, column 5, lines 1-10 and 36-62 and column 10, lines 3-35). Barron discloses that the prepreg may be cured or cooled as needed (column 10, lines 3-35). Baron specifically discloses that the prepreg may be semi-cured (see Example 3).

Regarding claims 14 and 40, Baron discloses that the resin varnish may be an epoxy resin, a phenol resin, or the like (column 10, lines 27-35).

Regarding claims 16 and 41, Baron discloses that the thermal-resistant synthetic fibers may be at least one kind of fibers such as aramid fibers or the like (column 5, lines 36-62).

Regarding claims 17-18, 37, 42-43 and 50, Baron discloses that the binder may be a low melting point glass (column 5, lines 1-10).

Regarding claims 19 and 44, Baron discloses that the content of the inorganic binder may range from 0.25 to about 100 weight parts when the thermal-resistant synthetic fibers are 100 weight parts (column 6, lines 56-65).

Regarding claims 20 and 45, Baron discloses that the fibers may have a diameter in the range of about 1 to about 1000 microns (column 5, lines 35-62).

Regarding claims 21 and 46, Baron discloses that the fibers may have a length of about 0.1 (2.54 mm) to 18 inches (column 5, lines 35-62).

Regarding claims 22 and 47, Baron discloses that the prepreg may be formed by an air-directed method (paragraph bridging columns 5 and 6), but does not specifically mention a wet formation method. It is the examiner's position that the article of the applied prior art is identical to the claimed article. Even though product-by-process claims are limited by and defined by the

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process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). The applied prior art either anticipated or strongly suggested the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the applied prior art.

Regarding claims 23 and 48, Baron discloses that the weight of the prepreg may range from about 0.1 to about 10 kg/m<sup>2</sup> (column 6, lines 11-25).

Regarding claims 24 and 49, Baron discloses that the average thickness of the prepreg may range up to about 1 inch (column 6, lines 11-25).

Regarding claims 63 and 65, Baron discloses that the inorganic binder coats the intersections of the short fibers and the remaining areas of the fibers (see entire document including column 3, lines 27-30 and column 9, lines 41-59).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 22, 25-26, 28-36, 38, 47, 51-62, 64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,030,575 to Barron as applied to claims 13-14, 16-24, 37, 39-50, 63 and 65 above, and further in view of EP 0 807 703 to Sakai et al. (hereinafter referred to as Sakai).

Regarding claims 22, 34, 47 and 59, although it is the examiner's position that the article of the applied prior art is identical to the claimed article (see above), in the event that it is shown that the article made by the method of Barron is not identical to the claimed article the following is submitted: Barron does not limit the production method for forming the nonwoven fabric. Sakai discloses that it is known in the art to use a wet formation method to obtain a nonwoven fabric (see entire document including page 2, lines 43-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the nonwoven fabric from any suitable formation method, such as a wet formation method, as taught by Sakai, because it is within the general skill of a worker in the art to select a known production process on the basis of its suitability.

Regarding claims 25-26, 28-36, 38, 51-62, 64 and 66, Barron does not specifically mention the use of the prepreg as an insulator in a circuit board, but Sakai discloses that it is known to use such a prepreg as an insulator in a circuit board (see entire document including page 2, lines 3-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the prepreg of Barron as an insulator in a circuit board, as taught by Sakai, because the prepreg of Barron is simple to construct (column 2, lines 59-63) while possessing the characteristics desired as an insulator in a circuit board.

Regarding claims 26 and 52, Baron discloses that the resin varnish may be an epoxy resin, a phenol resin, or the like (column 10, lines 27-35).

Regarding claims 28 and 53, Baron discloses that the thermal-resistant synthetic fibers may be at least one kind of fibers such as aramid fibers or the like (column 5, lines 36-62).

Regarding claims 29-30, 38, 54-55 and 62, Baron discloses that the binder may be a low melting point glass (column 5, lines 1-10).

Regarding claims 31 and 56, Baron discloses that the content of the inorganic binder may range from 0.25 to about 100 weight parts when the thermal-resistant synthetic fibers are 100 weight parts (column 6, lines 56-65).

Regarding claims 32 and 57, Baron discloses that the fibers may have a diameter in the range of about 1 to about 1000 microns (column 5, lines 35-62).

Regarding claims 33 and 58, Baron discloses that the fibers may have a length of about 0.1 (2.54 mm) to 18 inches (column 5, lines 35-62).

Regarding claims 35 and 60, Baron discloses that the weight of the prepreg may range from about 0.1 to about 10 kg/m<sup>2</sup> (column 6, lines 11-25).

Regarding claims 36 and 61, Baron discloses that the average thickness of the prepreg may range up to about 1 inch (column 6, lines 11-25).

Regarding claims 64 and 66, Baron discloses that the inorganic binder coats the intersections of the short fibers and the remaining areas of the fibers (see entire document including column 3, lines 27-30 and column 9, lines 41-59).

7. Claims 13-14, 16-24, 37, 39-50, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,030,575 to Barron in view of Applicant's Disclosure.

Regarding claims 13-14, 16-24, 37, 39-50, 63 and 65, Barron discloses a prepreg comprising a short fiber nonwoven fabric comprising thermal-resistant synthetic fibers, an inorganic binder, and a resin varnish wherein the prepreg is manufactured by bonding the synthetic fibers by coating with the inorganic binder and after the bonding impregnating the nonwoven fabric with a resin varnish wherein the thermal-resistant synthetic fibers intersect each other forming intersections wherein the thermal-resistant synthetic fibers are bound with the inorganic binder at the intersections (see entire document including column 4, lines 30-37, column 5, lines 1-10 and 36-62 and column 10, lines 3-35).

It is the examiner's position that Baron specifically discloses that the prepreg may be semi-cured (see Example 3), but in the event that it is shown that Barron fails to teach semi-curing the prepreg, it would have been obvious to one having ordinary skill in the art at the time the invention was made to semi-cure the prepreg of Barron, because the applicant discloses that it is known in the art to semi-cure a prepreg in order to deal with problems such as poor processability (see page 2, lines 6-13).

Regarding claims 14 and 40, Baron discloses that the resin varnish may be an epoxy resin, a phenol resin, or the like (column 10, lines 27-35).

Regarding claims 16 and 41, Baron discloses that the thermal-resistant synthetic fibers may be at least one kind of fibers such as aramid fibers or the like (column 5, lines 36-62).

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Regarding claims 19 and 44, Baron discloses that the content of the inorganic binder may range from 0.25 to about 100 weight parts when the thermal-resistant synthetic fibers are 100 weight parts (column 6, lines 56-65).

Regarding claims 20 and 45, Baron discloses that the fibers may have a diameter in the range of about 1 to about 1000 microns (column 5, lines 35-62).

Regarding claims 21 and 46, Baron discloses that the fibers may have a length of about 0.1 (2.54 mm) to 18 inches (column 5, lines 35-62).

Regarding claims 22 and 47, Baron discloses that the prepreg may be formed by an air-directed method (paragraph bridging columns 5 and 6), but does not specifically mention a wet formation method. It is the examiner's position that the article of the applied prior art is identical to the claimed article. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). The applied prior art either anticipated or strongly suggested the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the applied prior art.

Regarding claims 23 and 48, Baron discloses that the weight of the prepreg may range from about 0.1 to about 10 kg/m<sup>2</sup> (column 6, lines 11-25).

Regarding claims 24 and 49, Baron discloses that the average thickness of the prepreg may range up to about 1 inch (column 6, lines 11-25).

Regarding claims 63 and 65, Baron discloses that the inorganic binder coats the intersections of the short fibers and the remaining areas of the fibers (see entire document including column 3, lines 27-30 and column 9, lines 41-59).

8. Claims 22, 25-26, 28-36, 38, 47, 51-62, 64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,030,575 to Barron in view of Applicant's Disclosure as applied to claims 13-14, 16-24, 37, 39-50, 63 and 65 above, and further in view of EP 0 807 703 to Sakai.

Regarding claims 22, 34, 47 and 59, although it is the examiner's position that the article of the applied prior art is identical to the claimed article (see above), in the event that it is shown that the article made by the method of Barron is not identical to the claimed article the following is submitted: Baron does not limit the production method for forming the nonwoven fabric. Sakai discloses that it is known in the art to use a wet formation method to obtain a nonwoven fabric (see entire document including page 2, lines 43-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the nonwoven fabric from any suitable formation method, such as a wet formation method, as taught by Sakai, because it is within the general skill of a worker in the art to select a known production process on the basis of its suitability.

Regarding claims 25-26, 28-36, 38, 51-62, 64 and 66, Baron does not specifically mention the use of the prepreg as an insulator in a circuit board, but Sakai discloses that it is known to use such a prepreg as an insulator in a circuit board (see entire document including page 2, lines 3-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the prepreg of Baron as an insulator in a circuit board, as taught by Sakai, because the prepreg of Baron is simple to construct (column 2, lines 59-63) while possessing the characteristics desired as an insulator in a circuit board.

Regarding claims 26 and 52, Baron discloses that the resin varnish may be an epoxy resin, a phenol resin, or the like (column 10, lines 27-35).

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Regarding claims 64 and 66, Baron discloses that the inorganic binder coats the intersections of the short fibers and the remaining areas of the fibers (see entire document including column 3, lines 27-30 and column 9, lines 41-59).

### ***Response to Arguments***

9. Applicant's arguments filed 10/18/2004 have been fully considered but they are not persuasive.

The applicant asserts that because Barron's method includes no significant amounts of solvent the inorganic binder would not coat the fibers because of poor wettability. The examiner respectfully disagrees. Barron discloses that the prepreg is manufactured by bonding the synthetic fibers by coating, such as spray coating, with the inorganic binder (column 3, lines 22-41). Barron clearly discloses that the binder adheres to the fibers upon cooling (column 4, lines 23-29).

### ***Conclusion***

10. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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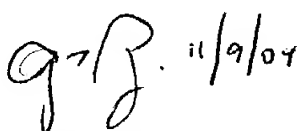
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

  
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PATENT EXAMINER

  
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